AMENDMENTS TO THE CLAIMS

Please cancel claims 1-30 and add Claims 31-61 as shown in the following listing of the claims:

1.- 30. (Canceled).

31. (New) A method for detecting a dimer in a sample, the method comprising:

mixing (i) a sample, which contains a dimer comprising a first membrane-associated analyte and a second membrane-associated analyte; (ii) a cleaving probe, which is capable of binding the first membrane-associated analyte and has a cleavage-inducing moiety with an effective proximity; and (iii) one or more binding compounds, at least one of which is capable of binding the second membrane-associated analyte, and each of which has one or more molecular tags attached thereto by a cleavable linkage, wherein cleavage of the cleavable linkage(s) within the effective proximity of the cleaving-inducing moiety of the cleaving probe releases the molecular tag(s);

wherein detecting the released molecular tag(s) detects the dimer.

32. (New) The method of Claim 31, wherein the first membrane-associated analyte and the second membrane associated analyte are both cell surface receptors.

33. (New) The method of Claim 32, wherein the first membrane-associated analyte and the second membrane associated analyte are the same receptor type.

34. (New) The method of Claim 32, wherein the first membrane-associated analyte and the second membrane associated analyte are different receptor types.

35. (New) The method of Claim 32, wherein the cell surface receptors are selected from the group consisting of epidermal growth factor receptors and G-protein coupled receptors.

36. (New) The method of Claim 35, wherein the cell surface receptors are selected from the group consisting of Her1, Her2, Her3 and Her4.

37. (New) The method of Claim 36, wherein the dimer is selected from the group consisting of a Her1-Her1 homodimer, a Her1-Her2 heterodimer, a Her1-Her3 heterodimer and a Her2-Her3 heterodimer.

38. (New) The method of Claim 31, wherein the cleaving probe comprises an antibody binding composition.

39. (New) The method of Claim 38, wherein the antibody binding composition comprises a monoclonal antibody.

40. (New) The method of Claim 38, wherein the antibody binding composition binds an antigenic determinant of the first membrane-associated analyte.

41. (New) The method of Claim 31, wherein the cleavage-inducing moiety of the cleaving probe is a sensitizer.

42. (New) The method of Claim 41, further comprising inducing the sensitizer to generate an active species that cleaves the cleavable linkage(s) of the binding compound(s) within the effective proximity.

43. (New) The method of Claim 41, wherein the sensitizer is a photosensitizer.

44. (New) The method of Claim 43, further comprising illuminating the photosensitizer to generate an active species that cleaves the cleavable linkage(s) of the binding compound(s) within the effective proximity.

45. (New) The method of Claim 42 or 44, wherein the active species is singlet oxygen.

46. (New) The method of Claim 45, wherein the cleavable linkage of the binding compound is an oxidation-labile linkage.

47. (New) The method of Claim 46, wherein the cleavable linkage of the binding compound is selected from the group consisting of a thioether, an olefin, a thiazole, and an oxazole.

48. (New) The method of Claim 31, wherein the one or more molecular tags have a separation characteristic.

49. (New) The method of Claim 48, further comprising separating the released molecular tags.

50. (New) The method of Claim 49, wherein the separation characteristic of said one or more molecular tags is electrophoretic mobility and the step of separating comprises electrophoretically separating the released molecular tags in a separation buffer.

51. (New) The method of Claim 31, wherein the one or more molecular tags are capable of generating an electrochemical, fluorescent or chromogenic signal.

52. (New) The method of Claim 51, wherein the one or more molecular tags are capable of generating a fluorescent signal.

53. (New) The method of Claim 31, wherein the one or more binding compounds comprise an antibody binding composition.

54. (New) The method of Claim 53, wherein the antibody binding composition comprises a monoclonal antibody.

55. (New) The method of Claim 31, wherein at least two binding compounds are mixed.

56. (New) The method of Claim 55, wherein the at least two binding compounds comprise at least two different binding compounds which bind different antigenic determinants of the first or second membrane-associated analyte.

57. (New) The method of Claim 55, wherein at least one of the binding compounds binds a phosphorylation site of the first or second membrane-associated analyte.

58. (New) The method of Claim 55, wherein at least two of the molecular tags attached to the at least two binding compounds have different separation characteristics.

59. (New) The method of Claim 58, wherein the method further comprises separating the released molecular tags from the at least two binding compounds.

60. (New) The method of Claim 59, wherein the molecular tags from the at least two binding compounds have different electrophoretic mobility and are separated electrophoretically.

61. (New) The method of Claim 60, further comprising incubating the cleaving probe, the at least two binding compounds and the sample in a binding buffer, and exchanging the binding buffer with a separation buffer, wherein said steps of incubating and exchanging are performed prior to said step of separating.